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Analysis of Fresh Flower Merchandising

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Analysis of Fresh Flower Merchandising[1]

JERRY L. ROBERTSON and LAURA H. CHATFIELD[2]

INTRODUCTION

The economic value of fresh flower production in the U. S. has exhibited little real growth and a declining market share during the last decade (1). At both wholesale and retail levels, many firms specializing in handling fresh flowers have witnessed the same loss in market position. Partial causes of these market problems have been characterized as excessive seasonal demand, consumer price resistance, and failure to merchandise effectively (11).

Although growers, wholesalers, shippers, and retailers have been involved in the distribution of floral products, retail florists have been the main representatives to consumers. Because of this strategic market channel position, retail florists have had considerable influence on consumers' attitudes and purchasing. The success of retail florists in expanding and developing consumer markets has remained important to the profitability and future survival of the entire fresh flower market channel.

Consumer demand for fresh flowers also has resulted in seasonality both in sales and prices which has caused seasonal imbalance between product supply and demand. The greater use of flowers as non-seasonal gifts and for decoration will help reduce the seasonality of fresh flower sales and increase aggregate flower sales (6, 10, 11, 12).

In order to capitalize on the impulse purchasing market, retail merchandisers need more complete and quantifiable consumer fresh flower merchandising strategies consistent with current consumer needs, wants, and lifestyles. Fresh flower merchandisers need to take advantage of the significant change from a relatively formal, postponed gratification lifestyle to an informal, instant gratification lifestyle altering consumers' price/value perception (8).

Although past floriculture research has given valuable information concerning consumer demand, solutions to the problem of expanding demand for flowers have not yet been isolated. A major problem in floriculture has been trying to understand what a flower purchaser really wants or needs in floral products and services. Whenever consumers select different floral products, they decide on the basis of many attributes since purchasing decisions involve more than one dimension. Past research has required the consumer to make an overall judgment about the relative values of attributes, to order the alternatives according to specific, conflicting criteria, and then to make complex trade-offs among the attributes (6, 13). Thus, determining the ideal floral product has become recognized as a complex, multi-dimensional problem.

The purpose of this study was to analyze and quantify consumer demand dimensions for major fresh flowers using differing flower compositions, presented in different merchandising forms and utilizing various price levels. The objectives were: 1) to determine the effect of product and package merchandising alternatives on the marketability of fresh flowers, and 2) to measure the price sensitivity of fresh flower purchasing behavior in relationship to the products merchandised.

PROCEDURE

Research was conducted on April 18, 1979, the Wednesday following Easter, and on May 16, 1979, the Wednesday following Mother's Day. These times were chosen to allow comparison of standard Easter and Mother's Day flower arrangements to variations in the standard holiday product offerings. Flower purchasing information was collected from a total of 192 persons. Decision Research Corporation (DRC), a Columbus, Ohio, based market research consulting firm, recruited the participants from the Columbus telephone directory. They provided a stratified sample of approximately 50% female and 50% male participants between the ages of 20 and 50 years old and total family income of $10,000 or above. These segmentations gave a representative sample of Columbus residents most likely to be current or potential flower purchasers. Groups were later segmented according to sex, age (less than 35 years old, 35 years old and older), and income ($10,000 to $25,000 and more than $25,000).

Columbus was chosen for this study since it has been used in the past for national test marketing of many consumer products and has a balanced socio-economic base (8). The experiments were conducted with the underlying assumption that the sample consumer group was comprised of a representative cross-section of Columbus and the results could be carefully extrapolated to the U. S. consuming population.

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Questionnaire information was collected concerning demographic and perceived purchasing habits. This data were used in determining segmentation groups. Questions were included to identify how often flower purchasers buy flowers, where and for which occasions they buy flowers. Additionally, attitude scale questions were used to help indicate positive and negative flower purchasing attitudes for a check on the consumer panel.

Conjoint analysis was used to determine the relative importance of a product's multi-dimensional attributes by separating the overall evaluations into psychological components providing information about both the relative utility or psychological value of the specific levels of any single attribute (2, 3, 4, 5, 7, 9). Consumers were asked to provide their preference ordering for various combinations of attributes of the products observed. Experiments were designed to provide insights into marketing and merchandising strategies which will enable the industry to more closely design floral products to fit consumer's current needs and to overcome consumer resistance to fresh flowers.

Sixteen experiments were grouped into three categories as follows:

1. **Arrangement merchandising**—analysis of floral merchandising in arrangement form. Comparisons were made between seasonal and standard fresh flowers, container types, arrangement forms, and price levels.

2. **Loose-bunch vs. arrangement merchandising**—analysis of comparison of consumer preference for flowers unarranged in loose bunch and the same flowers in arrangement form.

3. **Loose-bunch merchandising**—analysis of loose-bunch merchandising of fresh flowers using different flower types, colors, and price levels.

Fresh flowers utilized in the experiments were carnations, pompon chrysanthemums, roses, tulips, marguerite daisies, snapdragons, iris, daffodils, and gladioli. Different flower compositions, forms of merchandising styles, containers, and prices were varied among experiments (Table 1). Form of the merchandise defined whether the product was a loose bunch or an arrangement. Style reflected whether it was a mass, triangle, contemporary, formal, or informal arrangement. Each arrangement within an experiment was composed of a composition of flowers common to all arrangements and an additional flower type or color which varied according to factors studied. Price varied by flower quantity and container price. The containers relate to the arrangements only, and were varied depending on the type and style of the arrangement. The following formulas were used to price flowers depending on cost of the flowers and containers on the wholesale market at the time of the research.

$$\text{For arrangements: retail price} = \frac{\text{(container, flowers, and floral foam, wholesale cost)}}{0.45}$$

$$\text{For loose bunches: retail price} = \frac{\text{(flowers and plastic sleeve, wholesale cost)}}{0.50}$$

Each experiment involved the study of 3 factors. Experiments were systematically prepared on the basis of 3 levels for each of the 3 factors, resulting in a 3-way design of 27 product combinations. Even though there were actually a total of 27 product alternatives, participants only had to observe and rank 9 products due to the fractional factorial design. There was a 7-position rating scale on which participants ranked products from the most to the least desirable product offering. Ties were allowed except in the first and last positions. Rank-ordered input data yielded interval-scaled output data through use of a multiple regression model.

The utility values obtained through the multiple regression model represent the desirability of a factor in numerical terms on a relative basis. A zero value was always used as a base for the lowest valued factor from which to compare the other factors. The experiments were designed to control the effect of interactions among the factors studied. As with previous uses of conjoint analysis, interactions among factors studied were assumed to be controllable through the experimental design and explainable through careful analysis. However, the results should carry a caution that interaction confounding among factors, a weakness of conjoint analysis, may distort certain findings.

RESULTS AND DISCUSSION

Consumer Panel Characteristics

The consumer panel consisted of two groups of 99 and 93 persons for a combined panel of 192 persons. Some 52% were female and 48% were male. More than 66% had a family income between $10,000 and $25,000. Approximately 57% of the

panel purchased flowers two times or less per year, 33% purchased flowers three to six times per year, and slightly more than 10% purchased flowers more than six times per year. About 21% of the panel reported annual flower and plant budgets of less than $25 per year, 55% spent between $25-$75 per year, and 4% reported budgets of more than $75.

Relationships between certain segments of the entire consumer group indicated some key differences among consumers with different budgets and purchase frequencies. Persons who were willing to spend more on each individual fresh flower purchase also had the largest flower budget.

Females were more price sensitive than males:

Dollar Amount Willing to Spend per Arrangement

	$8-10	$10-20	$20 and more
Male	29%	66%	5%
Female	43%	56%	1%

More frequent flower purchasers purchased flowers more often in loose bunches than arrangements:

Purchase Frequency per Year

	2 times	3-6 times	6 times
Arrangement	69%	53%	28%
Loose bunch	31%	47%	72%

More than 53% of the panel responded that their flower budgets had not increased over the last 5 years. More than 98% of the panel reported purchasing flowers in a florist shop and only 45% had purchased flowers in a supermarket.

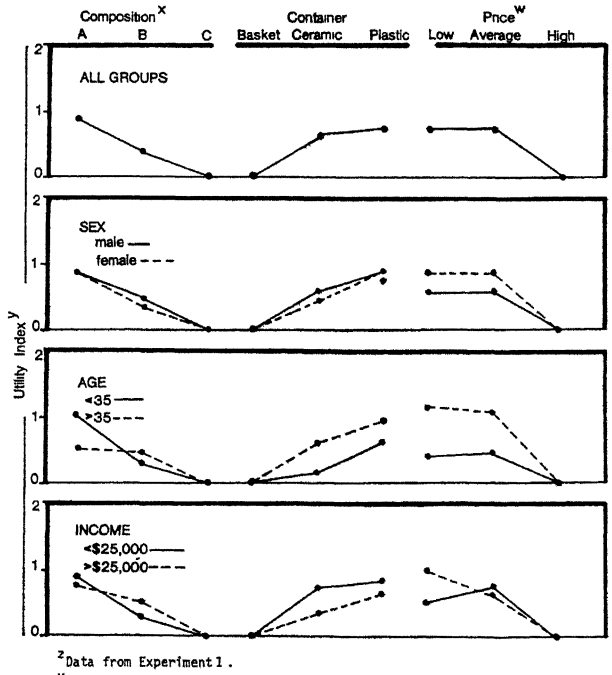
Arrangement Merchandising

Eight experiments dealt with arrangement merchandising. The consumer panel was asked to make trade-offs among form of arrangement, composition of flowers, container, and price. In experiments 1 to 4, traditional Easter and Mother's Day arrangements (seasonal) were compared to less traditional, less seasonal arrangements. Experiments 5 and 6 were less expensive or "cash-and-carry" arrangements. Experiments 7 and 8 emphasized style of arrangement. The purpose of all experiments was to measure and analyze the trade-offs involved in the ultimate consumer purchase decision for arranged fresh flowers.

Experiment 1—Flower arrangements were standard, mass arrangements with either a traditional Easter or Mother's Day theme. Factors studied were flower composition (including flower type and color), container, and price. All arrangements included yellow decorative pompon chrysanthemums, white daisy pompon chrysanthemums, and yellow miniature carnations. Blue iris, red tulips, or a combination of these flowers were added to the arrangements in varying amounts determined by price level and cost of container (Table 1).

Results were that all three factors had almost equal influence on the consumer's purchasing decision (Fig. 1). The arrangements with both red tulips and blue iris had significantly greater appeal than the arrangements with only red tulips or blue iris. However, arrangements with red tulips had more appeal than those with blue iris. The plastic container was the most popular, followed by the ceramic container and the basket. Arrangements priced at $10.00 and $15.00 had equal appeal.

The highest rated arrangement was the low-priced tulip and iris arrangement in the plastic container. By summing each possible factor combination which made up the 27 possible product combinations, conjoint analysis was able to predict that the second purchase choice was the same as the first in container and composition but at a $17.50 price level. This indicated the lack of price sensitivity between the $12.50 and $17.50 priced products and the desire to stay with a less expensive container with more flowers compared to a more expensive container with



[z]Data from Experiment 1.

[y]Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0

[x]A=yellow decorative pompons, white daisy pompons, yellow miniature carnations, red tulips, blue iris, B=yellow decorative pompons, white daisy pompons, yellow miniature carnations, red tulips; C=yellow decorative pompons, white daisy pompons, yellow miniature carnations, blue iris.

[w]Low=$12 50, Average=$17 50, High=$22.50.

FIG. 1.—Relative utility scores for composition, container, and price levels of holiday arrangements.[z]

fewer flowers. The lowest rated arrangement was the high priced iris arrangement in the basket.

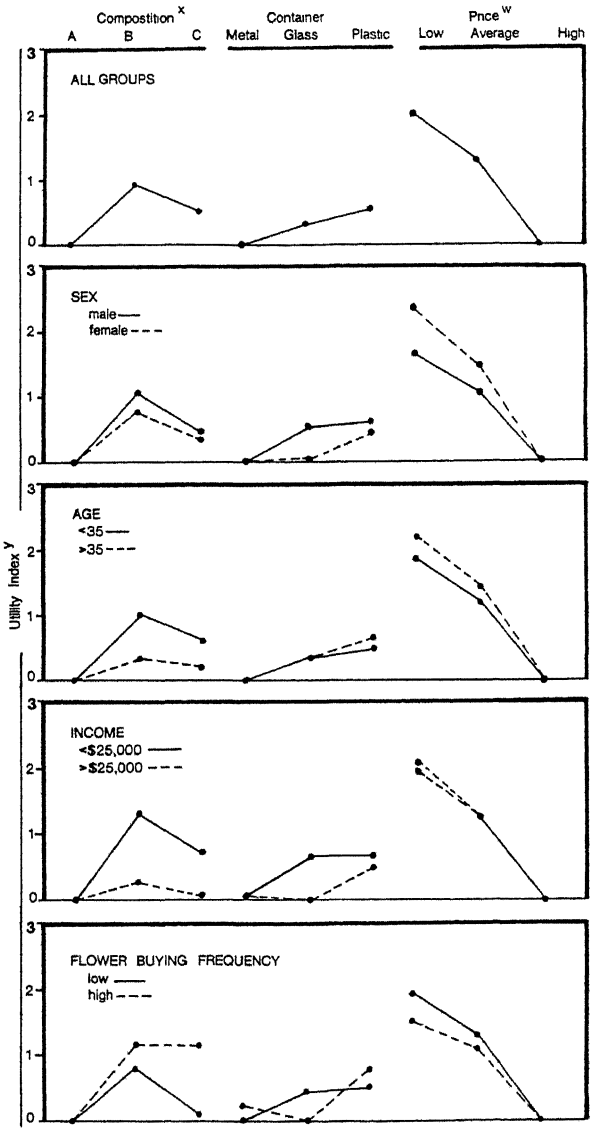
Experiment 2—This experiment was designed to compare different types of red flowers: tulips, carnations, and hybrid tea roses (Table 1). The basic arrangements to which these flowers were added were composed of white decorative pompon chrysanthemums and yellow daisy pompon chrysanthemums. Container and price were the second and third factors.

Price was the most important factor influencing the consumer's purchase choice, comprising 59% of their decision. For the older age and higher income groups, price accounted for more than 70% of the purchase decision. Container was the least important factor for all groups. Red roses added almost twice as much value to the arrangements as either the carnations or tulips (Fig. 2). Carnations and tulips competed well with roses in the high flower buying frequency consumer segment, where there was almost equal value expressed for both carnations and roses.

The plain container had the most appeal followed by the glass and metal containers. Price sensitivity was encountered at both the $15 and $20 price levels.

Overall, the rose arrangement at the $10 price in the plain container was the most highly rated arrangement. Second and third purchase choices were predicted to be rose arrangements priced at $10 in glass and metal containers, respectively, indicating the definite desire to select roses at the lowest price levels. The least valuable product was the tulip arrangement at the $20 price level in the metal container.

Experiment 3—This experiment was designed to measure the consumer response to spring flowers compared to more traditional or less seasonal flowers.



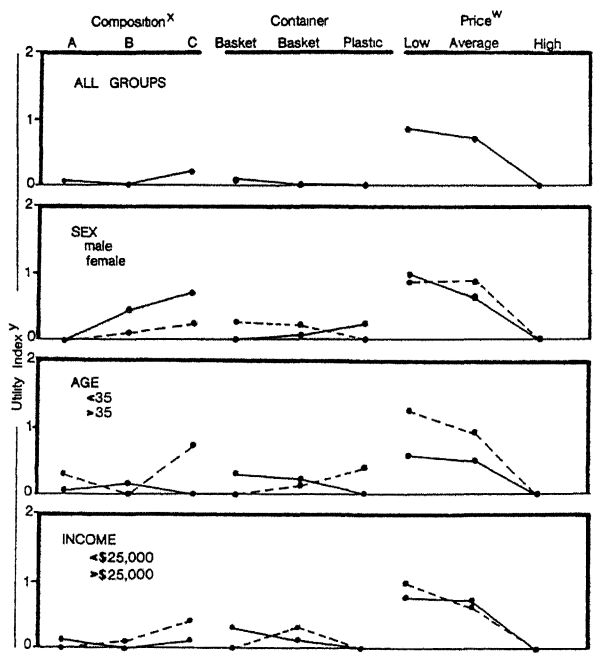
Z Data from Experiment 2

Y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

X A=white and yellow pompons, red tulips, B=white and yellow pompons, red roses; C=white and yellow pompons, red carnations.

W Low=$10.00, Average=$15.00, High=$20.00

FIG. 2.—Relative utility scores for composition, container, and price levels of holiday arrangements.[Z]



Z Data from Experiment 3

Y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0

X A=white pompons, yellow daffodils, red tulips, blue iris, B=white pompons, yellow carnations, white snapdragons, C=white pompons, white carnations, yellow Hybrid Tea roses

W Low=$12 50, Average=$17 50, High=$22 50

FIG. 3.—Relative utility scores for composition, container, and price levels of holiday arrangements.[4]

Factors were composition, container, and price. Compositions consisted of mass arrangements of white daisy pompon chrysanthemums, and either yellow daffodils, red tulips, and blue iris, or yellow carnations and yellow hybrid tea roses. Large and small wicker baskets were compared to the plastic container and price was varied by number of flowers and container size and type (Table 1).

Price was the most important factor, comprising 80% of the consumer's purchase choice (Fig. 3). The container factor was of little significance except with younger persons and persons at the lower income level, who placed more importance on the container than other segments.

As an entire consumer group, the white carnations and yellow roses added to the basic white daisy pompon chrysanthemum arrangement was the most valuable flower composition. However, some variation in purchase choice was isolated by consumer segment as persons with higher incomes held equal preference for both the white carnation and yellow rose arrangement and the daffodil, tulip, and iris arrangement. Overall, the traditional flowers rated higher than spring flowers.

The container was not important to the consumer. Products priced at the $12.50 level held the most appeal. The three most valued arrangements were the $12.50 priced carnation and rose arrangements in the three different container types.

Experiment 4—This experiment was similar to experiment 3 in comparing spring vs. traditional flowers in mass arrangements. Factors again were composition, container, and price. All arrangements included white daisy pompon chrysanthemums and white carnations. Blue iris, yellow snapdragons, or yellow hybrid tea roses were added to provide the composition factor. The 1979 FTD Easter Basket was compared to a wicker basket and a plain plastic container. Prices were $12.50, $17.50, and $22.50 and varied by number of flowers per arrangement as well as cost of container (Table 1).

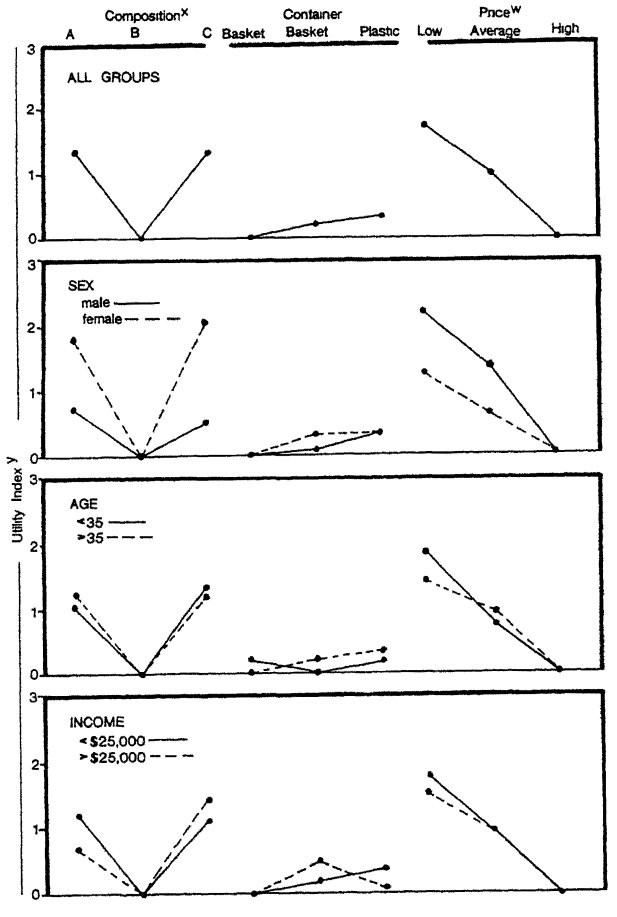
Price was the major consideration for the consumer, accounting for more than 50% of the purchase choice and indicating price sensitivity for the highest priced products in all consumer groups (Fig. 4). Composition was the second most important factor, followed by container. For all consumer groups, the blue iris or the yellow roses were both of near equal appeal. Yellow snapdragons ranked third.

Females had a considerably higher preference for the yellow roses than other segment groups. Composition was more important than price in the female purchasing decision. Products priced at $12.50 were twice as popular as the $17.50 and $22.50 priced arrangements.

Experiments 5 and 6—These experiments were designed to measure the consumer response to basic "cash-and-carry" marguerite daisy and pompon chrysanthemum arrangements. The price and size of arrangements were reduced in an attempt to measure consumer trade-offs for less expensive flowers and arrangements. For both experiments, factors were flower composition, container, and price (Table 1).

In experiment 5, compositions consisted of white marguerite daisies with no additional flowers, pink carnations or pink sweetheart roses. Containers were small and large ceramic containers with pedestals or a plastic container. Prices were $7.50, $12.50, and $17.50.

Composition accounted for 52% of the purchase decision. Both the pink carnation and the pink



[Z]Data from Experiment 4.

[Y]Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

[X]A=white pompons, white carnations, blue iris; B=white pompons, white carnations, yellow shapdragons; C=white pompons, white carnations, yellow Hybrid Tea roses.

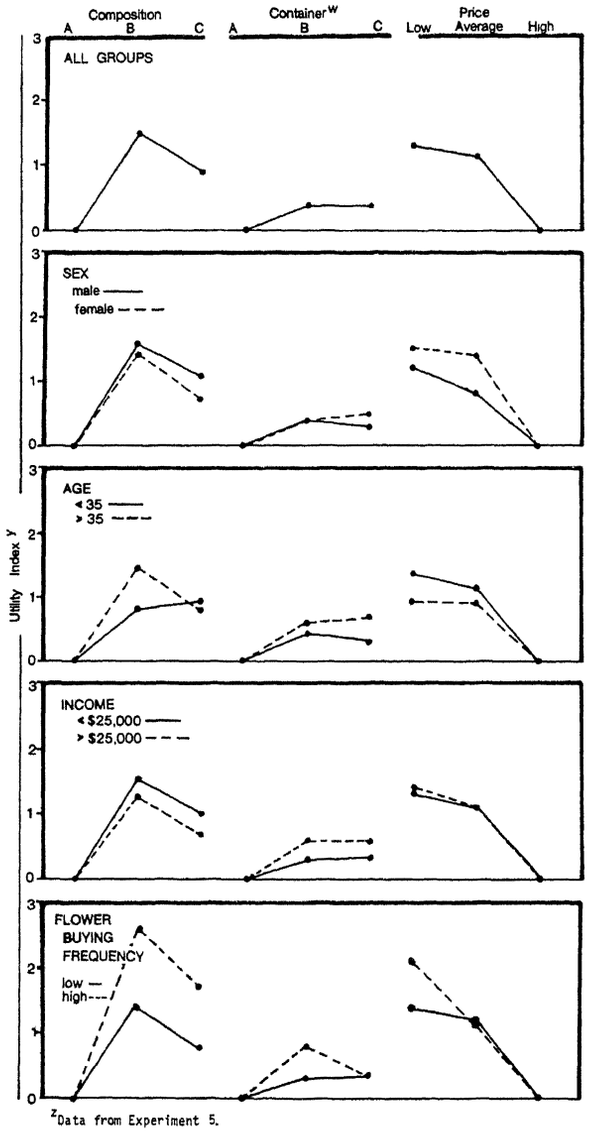
[W]Low=$12,50, Average=$17.50, High=$22 50.

FIG. 4.—Relative utility scores for composition, container, and price levels of holiday arrangements.[Z]

sweetheart rose added considerable value to the standard marguerite daisy arrangement (Fig. 5). Overall, the pink carnation arrangement was the most highly rated. When consumer groups were segmented, the younger age group had slightly greater preference for the addition of the pink sweetheart rose compared to the other groups.

Price was the second most important factor, accounting for 28% of the consumer's purchase decision. The $7.50 priced products were the most desirable but there was little price sensitivity between $7.50 and $12.50 priced products. Persons with a high flower purchasing frequency showed a much greater preference for the $7.50 priced products, possibly indicating that persons who buy flowers frequently do not want to spend a large amount on each individual purchase.

Container accounted for 20% of the purchase



Z Data from Experiment 5.

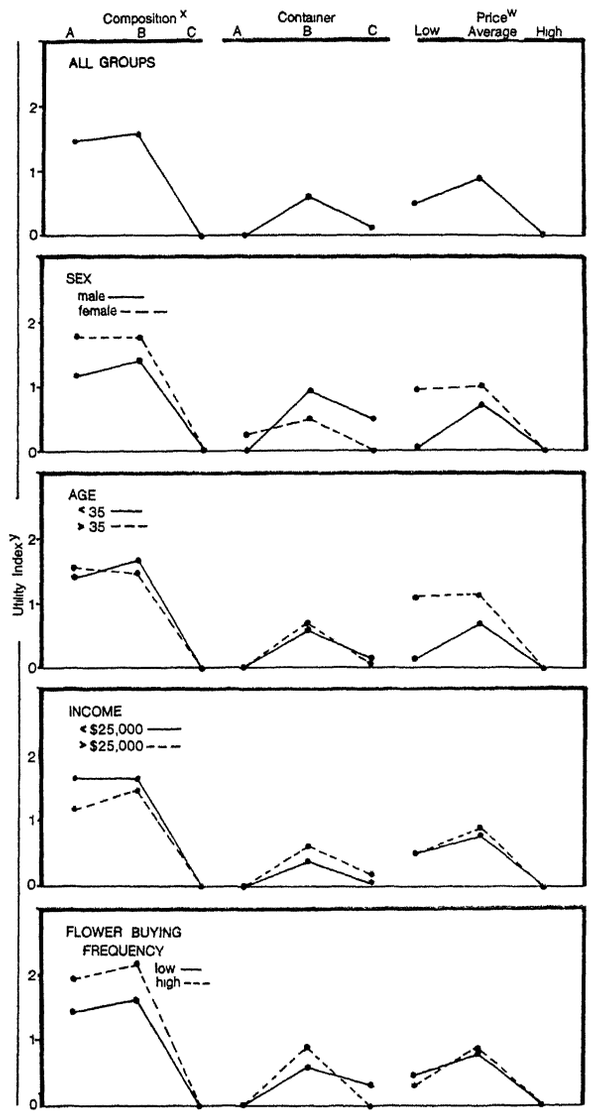
Y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

X A=marguerite daisies; B=marguerite daisies, pink carnations; C=marguerite daisies, pink Sweetheart roses.

W A=small ceramic container, B=large ceramic container; C= plastic container.

V Low=$7.50, Average=$12.50, High=$17.50

FIG. 5.—Relative utility scores for composition, container, and price levels for cash and carry arrangements.[Z]



Z Data from Experiment 6.

Y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

X A=White pompons, yellow pompons; B=yellow pompons; C=white pompons.

W Low=$10.00, Average=$12 50, High=$15 00.

FIG. 6.—Relative utility scores for composition, container, and price levels for cash and carry arrangements.[Z]

decision for the entire consumer group. Both the medium sized ceramic container and the plain plastic container held nearly equal appeal.

The highest rated arrangement was the low priced pink carnation arrangement in the larger sized ceramic container.

In experiment 6, compositions consisted of a combination of yellow decorative and white daisy pompons, yellow decorative pompons, or white daisy pompons (Table 1). The containers were the 1979 FTD Easter Basket, a wicker basket of similar shape, and a plastic container. Prices were $10.00, $12.50, and $15.00.

Composition accounted for 46% of the consumer's purchase choice. The yellow pompon arrangement had the greatest value, but the white and yellow pompon arrangement was nearly equal in value (Fig. 6). The plain white daisy pompon arrangement was ranked far below the other two arrangements.

There was little price sensitivity at the $10 and $12.50 price levels. The container factor played only a small part in influencing the consumer purchase decision, accounting for only 12% of the decision choice. The FTD basket was the consumer's first choice. The highest rated arrangement was the $12.50 yellow pompon arrangement in the FTD basket.

Experiments 7 and 8—The purpose of experiments 7 and 8 was to measure the consumer tradeoffs for traditional arrangements compared to less traditional or contemporary designs.

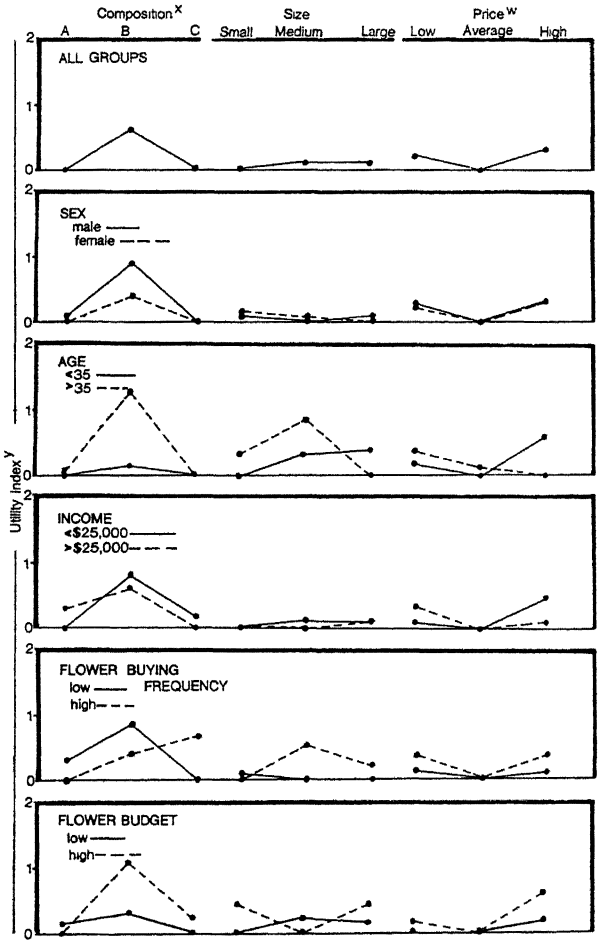
In experiment 7, the three factors were style, overall size of arrangement, and price. Styles of the arrangements were defined as: stylized, a contemporary arrangement of red anthuriums in a brass container; formal, a traditional arrangement of red hybrid tea roses in a milk white glass vase; and informal, a casual arrangement of red carnations in a wicker basket. Prices were $7.50, $10.00, and $12.50 for the small arrangements; $10, $15, and $20 for the medium arrangements; and $12.50, $17.50, and $22.50 for the large arrangements (Table 1).

Style of the arrangement accounted for 62% of the consumer purchase decision. The formal rose arrangements had the most appeal for consumers (Fig. 7). Both the stylized anthurium arrangements and the informal carnation baskets had very little consumer appeal in comparison to the rose arrangements.

The only consumer group to vary in preference was the high flower buying frequency segment. This group indicated preference for the informal carnation arrangement over the formal arangement.

Price accounted for approximately 30% of the purchase decision and size of the arrangement accounted for only 8%. For the entire consumer group, the medium and large arrangements had approximately equal value, but every rose arrangement at every price level and size was preferred to the anthurium or carnation arrangements. It appears that the formal rose arrangement was judged as the standard in arrangements, which consist of one flower type and color.

Experiment 8 was designed using only roses, varying the cultivar of rose, style of arrangement, and price. The stylized arrangements were in brass vases, the formal arrangements were in crystal vases, and the informal arrangements were in baskets. Rose cultivars were red ('Samantha'), yellow ('Golden Wave'), and third category of either white ('Promise Me') or pink ('Bridal Pink'). Prices were $12.50,



Z Data from Experiment 7.

Y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

X A = Stylized, red anthuriums; B = Formal, red Hybrid Tea roses; C = Informal, red carnations.

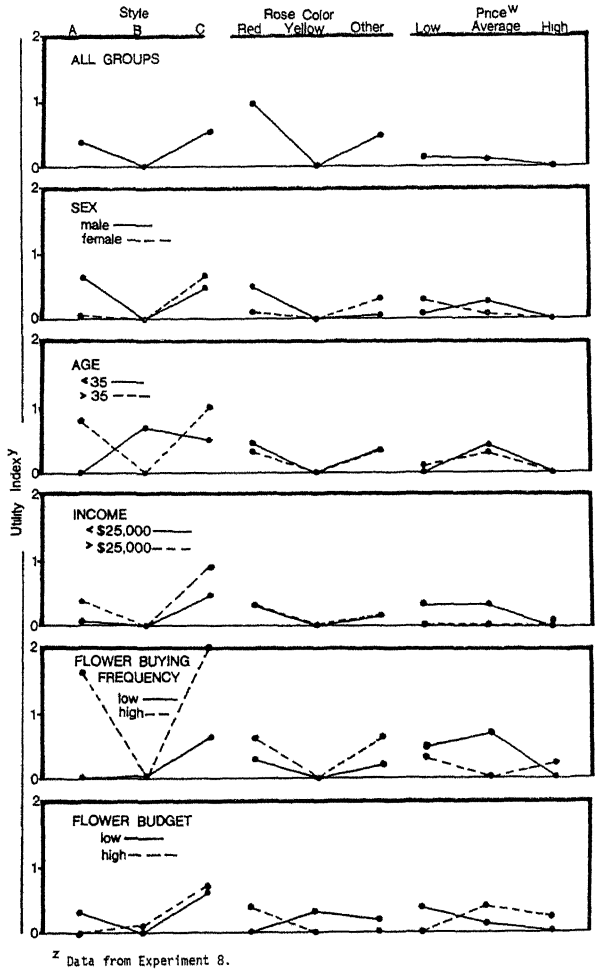
W Low = $7.50, $10.00, $12.50; Average = $10.00, $15.00, $20.00; High = $12.50, $17.50, $22.50 for small, medium and large arrangements, respectively.

FIG. 7.—Relative utility scores for composition, size, and price levels of stylized, formal, and informal arrangements.Z

$15.00, and $17.50 for the informal arrangements; $17.50, $20.00, and $22.50 for the formal arrangements; and $22.50, $25.00, and $27.50 for the stylized arrangements (Table 1).

Approximately 50% of the purchase decision was based on style. The informal arrangement had the greatest appeal, although the stylized arrangement was also judged an attractive product offering in comparison to the formal arrangement (Fig. 8).

The only difference was noted among younger persons, who valued the formal arrangement more than the stylized. Cultivar of rose accounted for approximately 25% of their purchase decision and approximately 20% of their purchase choice was based on price. The most popular arrangements were the



[z] Data from Experiment 8.

[y] Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

[x] A = Stylized, red roses in brass container; B = Formal, yellow roses in crystal vase; C = Informal, pink or white roses in basket.

[w] Low = $12.50, $15.00, $17.50; Average = $17.50, $20.00, $22 50, High = $22.50, $25.00, $27.50 for stylized, formal, and informal arrangements, respectively.

FIG. 8.—Relative utility scores for style, rose color, and price levels of stylized, formal, and informal fresh flower arrangements.[z]

informal red rose arrangements at all price levels, indicating strong preference for these products.

Summary for Arrangement Merchandising— The consumer was primarily interested in product price. Arrangements priced at $10.00 and $12.50 were the most attractive to the consumer.

Composition of arrangement was second in importance to price, and generally the addition of roses to an arrangement added considerable value. Males rated arrangements highly when red roses were included in the arrangements. Females rated arrangements highly when yellow roses were added. Except for the blue iris, the other seasonal product offerings such as tulips or snapdragons did not evoke a great consumer response. The less seasonal traditional carnations and roses had more appeal than seasonal flowers such as snapdragons or tulips.

The composition of the arrangement became more important than price when prices ranged between $7.50 and $12.50. The mixing of colors and flowers in an inexpensive container at about $12.50 resulted in a very acceptable and marketable arrangement.

The container was not an important factor. In general when a plastic container was compared to either the basket or to a glass container of any type, the plastic container had the most appeal. Younger persons and females showed some interest in the basket, but overall the consumer was interested more in the flowers than the container. The container became a more important factor in more basic arrangements.

Comparing the style of arrangements, the rose arrangement was found to be the standard or the most popular of the exclusively one flower type and color arrangements. The formal rose arrangement at the high price ranked much higher than the stylized anthurium arrangement or the informal carnation arrangement.

When the only choice for the consumer was roses, color and style became equally important segments. Red roses were ranked the highest by all consumers except females and persons more than 35 years old. Roses in an informal arrangement had the greatest consumer appeal.

Loose-Bunch and Arrangement Merchandising

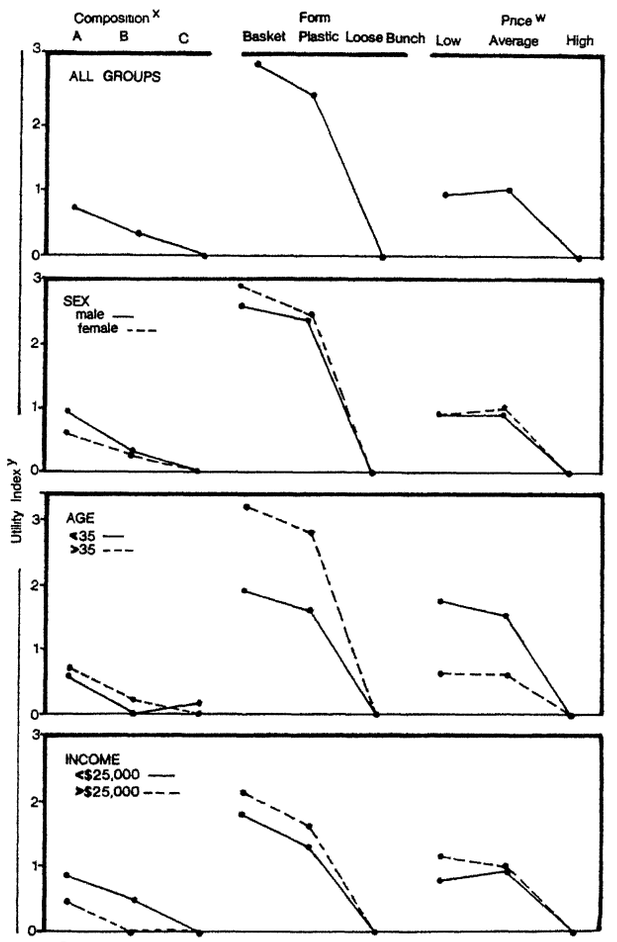
The primary purpose of these experiments was to determine the consumer trade-offs in purchasing arrangements compared to loose bunches. Factors studied were composition, form, and price. Composition was defined as the types of flowers included in each arrangement. Form was the manner in which the flowers were presented, either an arrangement or a loose bunch with clear plastic sleeve (Table 1). Prices were always at three levels.

In experiment 9, composition consisted of either yellow decorative pompon chrysanthemums, white daisy pompon chrysanthemums, or a combination of the two flower types. Forms were an arrangement in basket, arrangement in plastic container, or a loose bunch. Prices were $10.00, $12.50, and $15.00 when the flowers were offered as an arrangement and $3.95, $5.95, and $7.95 when offered as a loose bunch.

Experiment 10 was similar to the above experiments as composition consisted of white carnations with the addition of either white or yellow daisy pompon chrysanthemums or a combination of these flowers. Arrangements were either in a ceramic container, basket, or loose bunch. Prices were defined as $12.50, $15.00, and $17.50 when the flowers were in arrangements and $4.50, $8.50, and $12.50 when the flowers were in loose bunches.

In experiment 11, composition consisted of white and yellow daisy pompon chrysanthemums and lavender decorative pompons. Either coral carnations, pink carnations, or yellow carnations were added to the arrangements. Form consisted of arrangements in either the FTD "cookie jar", a plastic container, or a loose bunch. Prices for the arrangements were $12.50, $15.00, and $17.50. Prices for the loose bunches were $3.95, $4.95, and $7.95.

The results in experiments 9, 10, and 11 indi-



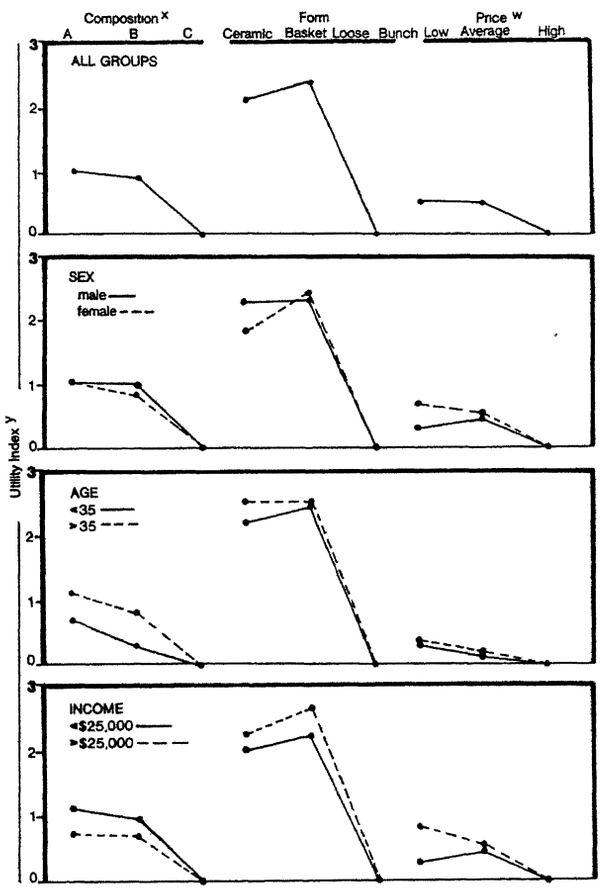
z Data from Experiment 9.

y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

X A = yellow decorative pompons, white daisy pompons; B = yellow decorative pompons; C= white daisy pompons.

W Low = $3.95, $10.00; Average = $5.95, $12.50; High = $ 7.95, $15.00 for loose bunches and arrangements, respectively.

FIG. 9.—Relative utility scores for composition, form, and price levels of arrangement and loose bunch products.z



z Data from Experiment 10.

y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

X A = white carnations, yellow daisy pompons, white daisy pompons; B = white carnations, yellow daisy pompons; C = white carnations, white daisy pompons.

W Low = $4.50, $12.50; Average = $8.50, $15.00; High = $12.50, $17.50 for loose bunches and arrangements, respectively.

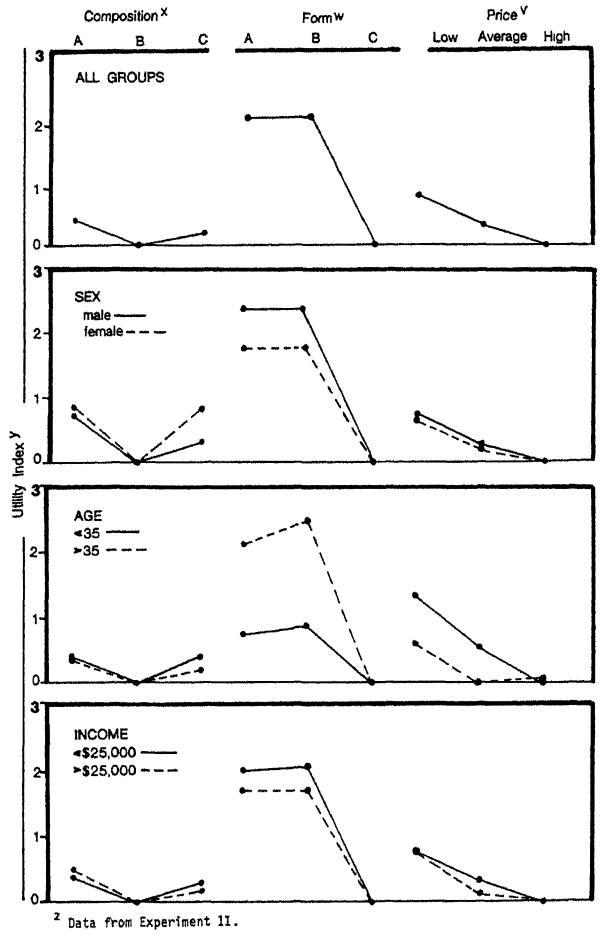
FIG. 10.—Relative utility scores for composition, form, and price levels of arrangement and loose bunch products.z

cated that form was the most important characteristic influencing the consumer's purchase choice (Figs. 9, 10, and 11). Approximately 60% of the purchase decision was attributed to form. Loose-bunch products ranked far below their arrangement counterparts, indicating that the consumer was willing and preferred to pay more to have flowers arranged.

Within the form factor, in experiment 9 when a plastic container was compared to a basket, the basket had the most appeal (Fig. 9). In experiment 10, when a green ceramic container was compared to a basket, the basket again rated the highest, except in the male segment and the older age group segment where both scored equally well (Fig. 10). In both experiments, females showed extreme preference for the basket. In experiment 11, the FTD "cookie jar" container was compared to a plastic container and there was little consumer value difference in the two containers (Fig. 11).

In all three experiments, the highest priced products were the least desirable. In experiment 9 where the differential between low and average prices was between $10.00 and $12.50, there was little price sensitivity. Products at both price levels were equally popular. In experiments 10 and 11, prices ranged from $12.50 to $17.50 and consumers showed the greater preference for the $12.50 priced products.

In all three experiments and across all consumer groups, the bright color compositions had the most appeal among consumers. In experiments 9 and 10, the combination of yellow and white daisy pompons was most popular followed by plain yellow daisy pompons. Least popular was the plain white daisy pompon composition. In experiment 11, the bright coral carnations were the most popular, followed by the yellow carnations.



z Data from Experiment 11.

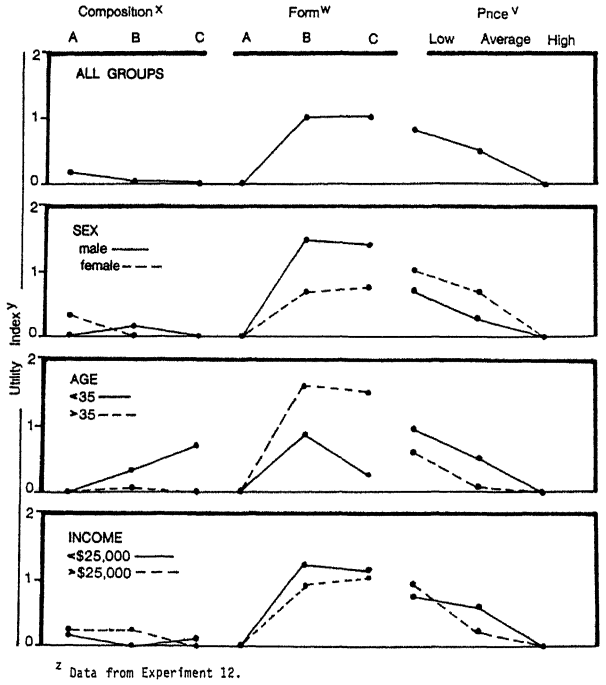
y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

x A = white daisy pompons, yellow daisy pompons, lavender pompons, coral carnations; B = white daisy pompons, yellow daisy pompons, lavender pompons, light pink carnations; C = white daisy pompons, yellow daisy pompons, lavender pompons, yellow carnations.

w A = "cookie jar" container, B = plastic container, C = loose bunch.

v Low = $3.95, $12.50; Average = $5.95, $15.00; High = $7.95, $17.50 for loose bunches and arrangements, respectively.

FIG. 11.—Relative utility scores for composition, form, and price levels of arrangement and loose bunch products.[z]



z Data from Experiment 12.

y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

x A = orange galdioli, yellow pompons, white carnations; B = white gladioli, yellow pompons, white carnations; C = pink galdioli, yellow pompons, white carnations.

w A = loose bunch; B = traditional arrangement; C = contemporary arrangement.

v Low = $3.95, $12.95, $15.95; Average = $5.95, $15.95, $17.95; High = $7.95, $17.95, $19.95 for loose bunch, traditional arrangement, and contemporary arrangement, respectively.

FIG. 12.—Relative utility scores for composition, form, and price levels of arrangement and loose bunch products.[z]

Experiment 12 was designed to measure the consumer response to gladioli in loose bunches and arrangements as an impulse purchase item. Orange, white, or pink gladioli were added to yellow decorative pompon chrysanthemums and white carnations. The levels of form were loose bunch, traditional symmetrical arrangement in ceramic container, and contemporary line arrangement in a brass container. Prices were $3.95, $5.95, and $7.95 for the loose bunch products; $12.95, $15.95, and $17.95 for the traditional arrangements; and $15.95, $17.95, and $19.95 for the contemporary arrangements (Table 1).

As in experiments 9, 10, and 11, form was the most important factor, accounting for approximately 50% of the purchase decision. Arrangements were more valuable than loose bunches (Fig. 12). Consumers expressed almost the same preference for symmetrical and asymmetrical arrangements. Gladioli color was not important, accounting for only 8% of the consumer decision.

Summary of Arrangement and Loose-Bunch Merchandising—As in previous research using conjoint analysis, form was the most important product characteristic (6). The consumer preferred and was willing to pay the higher price to have flowers arranged. The basket has more appeal than either a plastic container or a ceramic vase, but when the consumer must make a trade-off between a larger arrangement with more flowers or a more expensive container with fewer flowers, the larger arrangement was selected. Lower priced arangements around $12.50 were the most desired prices and bright colors had the greatest consumer appeal.

Loose-Bunch Merchandising

The purpose of these experiments was to examine the trade-offs in loose bunch merchandising considering different flower compositions, colors, and prices. Both homogeneous and mixed bunches were analyzed.

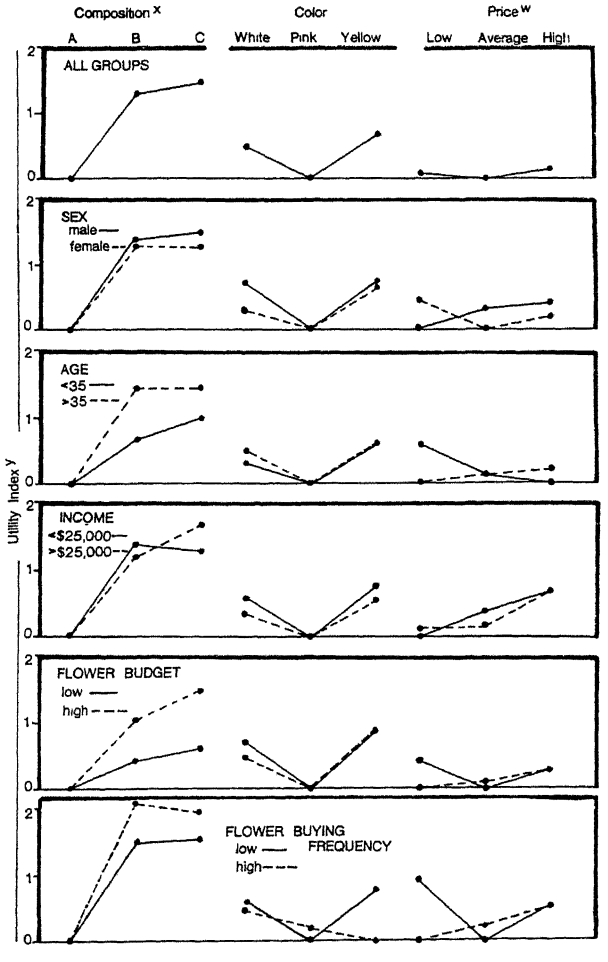
Experiment 13 was composed of homogeneous bunches of marguerite daisies, standard carnations, and hybrid tea roses. The three color levels were white, pink, and yellow, and prices were $3.95, $5.95, and $7.95 (Table 1).

Approximately 60% of the consumer's purchase choice was based on the composition. Hybrid tea roses and carnations had nearly equal value but consumer segmentation revealed that the higher income and younger age group valued the roses more than the carnations (Fig. 13). The marguerite daisies had much less appeal and were not competitive, even though the consumer could get almost three times as many daisies as roses or carnations for the same price.

Both color and price had equal influence on younger persons and lower income groups. All other segments ranked color as the second most important, with 30% of the decision choice. The yellow color was most valued while pink was favored the least across all consumer groups.

In the groups showing a very high preference for the roses, the $7.95 product was the most valued. Where the consumer did not feel as strongly about the rose or preferred the carnation, the lowest priced product at $3.95 was rated the highest.

When consumers were segmented according to flower buying frequency and flower budget, low frequency and low budget buyers generally chose the lower price.



Z Data from Experiment 13.

Y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

X A = marguerite daisies; B = carnations; C = Hybrid Tea roses.

W Low = $3.95; Average = $5.95; High = $7.95.

FIG. 13.—Relative utility scores for composition, color, and price levels of loose bunch products.[Z]

In experiment 14, homogeneous loose bunches of miniature carnations, marguerite daisies, and sweetheart roses were compared. All loose bunches contained leatherleaf. There were three color categories: pink, white, and either yellow, orange, or peach, and the prices were $2.95, $4.95, and $6.95 (Table 1).

Color accounted for more than 50% of the consumer purchase choice, with pink having the greatest appeal. White was valued the least, lagging far behind pink and the yellow-orange-peach color category (Fig. 14). Composition was the second most important purchasing component, accounting for about 40% of the purchase choice. In all groups the sweetheart rose was the most desirable. The $2.95 and $4.95 prices alternate with the highest rankings across all groups. All utility scores were relatively low, indicating little price sensitivity in the $2.95 to $6.95 price range.

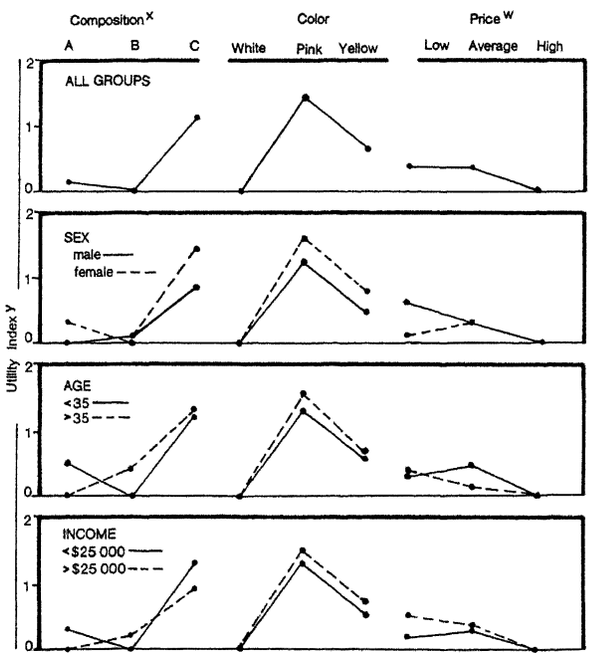
All groups but females are willing to pay the high price to stay with the pink sweetheart rose. The pink sweetheart rose at all price levels held more value than any other flower type or color, except among females where the orange sweetheart rose scored the highest.

After the sweetheart rose, the miniature carnation scored highest for females, younger persons, and persons with income less than $25,000, while the marguerite daisy scored highest for males, older persons, and persons with higher incomes.

The ideal product offering was the bunch of pink or orange sweetheart roses priced at $2.95 or $4.95.

Experiment 15 was designed to test the inclusion of different types and colors of roses in mixed loose bunches. Composition consisted of a basic bouquet of mixed flowers which included white and yellow daisy pompons, white carnations, and baby's breath. Either hybrid tea roses, floribunda roses, or sweetheart roses were added to the standard bouquet. Rose colors were red, pink, and a third category which included yellow ('Golden Wave'), a hybrid tea rose; peach ('Sonia'), a floribunda; and orange ('Belinda'), a sweetheart rose (Table 1).

The sweetheart rose held the greatest appeal for consumer groups (Fig. 15). The rose type was the least important factor in the consumer's purchasing decisions. Color and price dominated. The yellow-orange roses had the most appeal, followed by red and then pink. Females were the only segment to judge the red roses as least desirable. The ideal



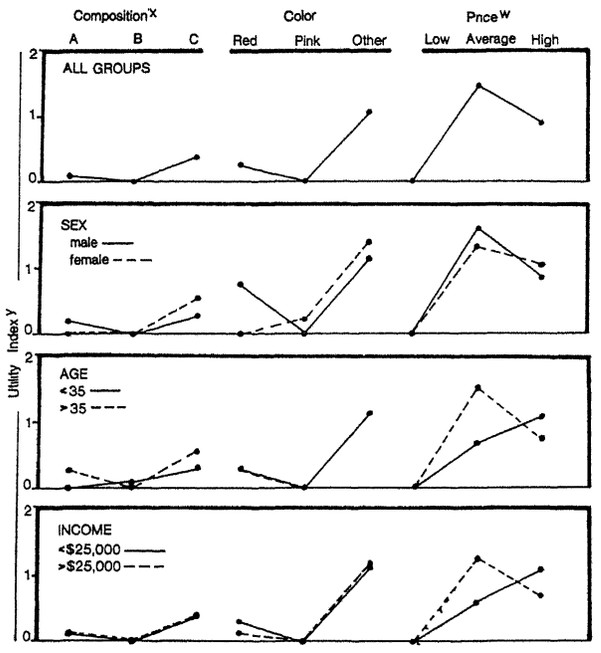
Z Data from Experiment 14

Y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

X A = miniature carnations, B = marguerite daisies; C = Sweetheart roses

W Low = $2.95, Average = $4 95; High = $6.95.

FIG. 14.—Relative utility scores for composition, color, and price levels of loose bunch products.[Z]



Z Data from Experiment 15.

Y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

X A = mixed loose flowers with Hybrid Tea roses; B = mixed loose flowers with Floribunda roses; C = mixed loose flowers with Sweetheart roses.

W Low = $3.95; Average = $5.95, High = $7 95

FIG. 15.—Relative utility scores for composition, color, and price levels of loose bunch products.[Z]

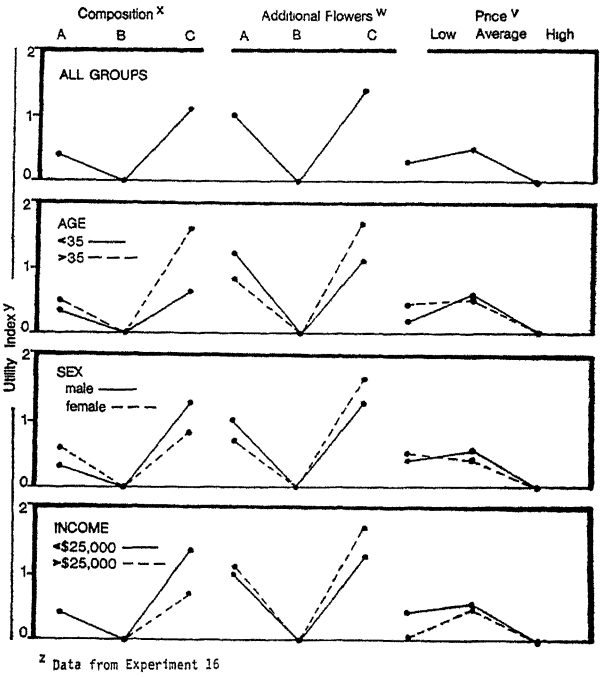
product offering was the 'Belinda' rose in a mixed bunch and priced at $5.95.

In experiment 16, the position of the gladioli in a loose bunch was analyzed in an attempt to reposition the gladioli as an impulse purchasing item. The loose bunches included a standard bouquet of yellow decorative and white daisy pompons with no additional flowers, only white carnations added, and white carnations and purple statice/baby's breath added. Pink gladioli were compared to pink snapdragons and pink hybrid tea roses ('Bridal Pink'). Prices were $3.95, $5.95, and $7.95 (Table 1). The consumer was offered loose bunches of mixed flowers with either the addition of pink gladioli, pink snapdragons or pink roses.

Roses were ranked the highest but the gladioli were a close second for all groups but females (Fig. 16). Males chose the gladioli over the rose. In all groups, the snapdragon had the least consumer appeal.

Summary of Loose Bunch Merchandising—Overall, in the loose-bunch merchandising experiments, price sensitivity was relatively low. For mixed loose bunches, $5.95 to $7.95 was the most popular price range. For the homogeneous bunches, $2.95 to $4.95 was the most popular price range.

Sweetheart roses enhanced the consumer's perceived value of loose bunches. Pink sweetheart roses mixed with white daisy pompons and greens priced at $6.95 was the highest rated product offering. However, the gladioli held a strong market position against the rose. The addition of color greatly enhanced the perceived image of loose bunches, particularly when the flowers included carnations and roses.



z Data from Experiment 16

y Utility index represents a relative utility score for purchasing components in each experiment where the lowest component value was set at a base value of 0.

x A = yellow pompons, white pompons, B = yellow pompons, white pompons, white carnations, C = yellow pompons, white pompons, white carnations, purple statice, babies breath.

w A = gladioli, B = snapdragons, C = roses

FIG. 16.—Relative utility scores for composition, additional flowers, and price levels of loose bunch products.[z]

SUMMARY AND IMPLICATIONS

Results showed that independent of the type of flowers included, consumers always make the decision favoring flowers arranged compared to loose-bunch merchandising. No consumer segment could be identified that had a positive product image for loose-bunch merchandising. Consumers preferred and would spend more to have flowers arranged.

However, in loose-bunch merchandising, color was a key in enhancing the product image of loose bunches. Non-red, sweetheart roses were particularly effective in enhancing the value of mixed loose bunches. Loose bunches in the $5.95 to $7.95 price range had the strongest consumer value.

For spring, Easter, and Mother's Day purchasing, flowers were a significantly more important aspect of the product offering than the container. When consumers were given a choice between more flowers in a less expensive container and the standard "Easter Basket" and "Bug Hug" arrangements, they expressed significantly more appeal for the flowers in the inexpensive container. Thus, Easter and Mother's Day product appeal can be increased with more flowers in a less expensive container.

Consumers displayed much greater appeal for smaller holiday arrangements priced at $10.00 and $12.50 compared to larger arrangements priced at $15.00 and $17.50. In Easter arrangements, three red flowers, tulips, roses, or carnations in traditional arrangements priced less than $15.00, preferably $12.50, were the most valued by consumers. Roses added significantly greater value than carnations and tulips.

Roses were the standard in formal and stylized arrangements exclusively of one flower type. Yet more informal arrangements significantly enhanced the consumer value of roses.

Small cash and carry arrangements priced at $7.50 evoked a significant consumer response. The inclusion of contrasting colors, particularly yellows and oranges, added very significant value and increased the marketability of the product offerings.

The gladioli can be repositioned in the market as non-funeral flowers. They have characteristics which result in strong consumer appeal, particularly with males and persons less than 35 years of age when merchandised in loose bunches and in arrangements.

Females were more perceptive than males regarding the composition of floral arrangements and loose bunches. Consequently, they are much more discriminating buyers.

Price sensitivity varied frequently by the sex and age of the consumer, indicating that product image can be enhanced and price resistance lowered by careful analysis and design of floral products.

Consumers found the yellow, peach, and orange rose to be the most desirable. Results on rose color were found to be consistent with previous rose marketing studies (6, 10). Females showed the strongest preference for the yellow color. The pink rose color held the least value in all but the female segment, where the red color was valued the least. Males felt very strongly about the red rose, scoring much higher than any other segment, while females rated the yellow, peach, and orange roses significantly higher than the pink or the red roses.

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TABLE 1.—Description of 16 Experiments.

Experiment	Form of Merchandising	Style	Standard Flower Composition	Additional Flowers	Price	Container
1	arrangements	mass	yellow decorative pompon chrysanthemums, yellow daisy pompon chrysanthemums, yellow miniature carnations	red tulips, blue iris, or red tulips and blue iris	small arrangement: $12.50 medium arrangement: $17.50 large arrangement: $22.50	plastic or ceramic or basket
2	arrangements	mass	white daisy pompon chrysanthemums, yellow daisy pompon chrysanthemums	red tulips or red roses ('Forever Yours') or red carnations	small arrangement: $10.00 medium arrangement: $15.00 large arrangement: $20.00	plastic or metal or glass
3	arrangements	mass	white daisy pompon chrysanthemums	yellow daffodils, red tulips, blue iris, or yellow carnations and white snapdragons or white carnations and yellow hybrid tea roses	small arrangement: $12.50 medium arrangement: $17.50 large arrangement: $22.50	plastic or small basket or large basket
4	arrangements	mass	white daisy pompon chrysanthemums, white carnations	blue iris or yellow snapdragons or yellow hybrid tea roses ('Golden Wave')	small arrangement: $12.50 medium arrangement: $17.50 large arrangement: $22.50	plastic or FTD "Easter Basket" or basket
5	arrangements (cash-and-carry)	mass	white marguerite daisies	no additional flowers or pink carnations or pink sweetheart roses ('Junior Bridesmaid')	small arrangement: $7.50 medium arrangement: $12.50 large arrangement: $17.50	plastic or small ceramic or large ceramic
6	arrangements (cash-and-carry)	mass	white daisy pompon chrysanthemums, yellow decorative pompon chrysanthemums		small arrangement: $10.00 medium arrangement: $12.50 large arrangement: $15.00	plastic or FTD "Easter Basket" or basket
7	arrangements	stylized (contemporary) or formal (traditional) or informal	red anthuriums or red hybrid tea roses or red carnations		small arrangements: $7.50, $10.00, $12.50 medium arrangements: $10.00, $15.00, $20.00 large arrangements: $12.50, $17.50, $22.50	anthuriums—brass or carnations—basket or roses—crystal vase

TABLE 1 (Continued).—Description of 16 Experiments.

Experiment	Form of Merchandising	Style	Standard Flower Composition	Additional Flowers	Price	Container
8	arrangements	informal or formal or stylized	hybrid tea roses	red ('Samantha') or yellow ('Golden Wave') or other white ('Promise Me') or pink ('Bridal Pink')	informal arrangements: $12.50—small $15.00—medium $17.50—large formal arrangements: $17.50—small $20.00—medium $22.50—large	informal basket or formal—crystal vase or stylized—brass
9	arrangements or loose bunches	mass and loose bunches in plastic sleeves	white daisy pompon chrysanthemums or yellow decorative pompon chrysanthemums or combination		arrangements: small—$10.00 medium—$12.50 large—$15.00 loose bunches: small—$3.95 medium—$5.95 large—$7.95	plastic or basket or sleeve wrapping
10	arrangements or loose bunches	mass or loose bunches with plastic sleeves	white carnations	yellow and white daisy pompon chrysanthemums or yellow daisy pompon chrysanthemums or white daisy pompon chrysanthemums	arrangements: small—$12.50 medium—$15.00 large—$17.50 loose bunches: small—$4.50 medium—$8.50 large—$12.50	ceramic or plastic or loose bunch
11	arrangements or loose bunches	symmetrical, one sided or loose bunches with plastic sleeves	white and yellow daisy pompon chrysanthemums, lavender decorative pompon chrysanthemums	coral carnations or pink carnations or yellow carnations	arrangements: small—$12.50 medium—$15.00 large—$17.50 loose bunches: small—$3.95 medium—$5.95 large—$7.95	FTD "cookie jar" vase or plastic or loose bunch
12	arrangements	loose bunches or symmetrical, one sided (traditional) asymmetrical, one sided (contemporary)	yellow decorative pompon chrysanthemums, white carnations	orange glads or white glads or pink glads	loose bunches: small—$3.95 medium—$5.95 large—$7.95 traditional arrangements: small—$12.95 medium—$15.95 large—$17.95 contemporary arrangements: small—$15.95 medium—$17.95 large—$19.95	traditional: ceramic contemporary: brass
13	loose bunches		marguerite daisies or carnations or hybrid tea roses	white or pink or yellow	loose bunches: small—$3.95 medium—$5.95 large—$7.95	

TABLE 1 (Continued).—Description of 16 Experiments.

Experiment	Form of Merchandising	Style	Standard Flower Composition	Additional Flowers	Price	Container
14	loose bunches		miniature carnations or marguerite daisies or sweetheart roses	pink or white or yellow	loose bunches: small—$2.95 medium—$4.95 large—$6.95	
15	loose bunches		white and yellow daisy pompon chrysanthemums, white carnations, baby's breath	hybrid tea roses or floribunda roses or sweetheart roses [red or pink or other (yellow, peach, orange)]	loose bunches: small—$3.95 medium—$5.95 large—$7.95	
16	gladioli merchandising in loose bunches		yellow decorative pompon chrysanthemums, white carnations	orange glads or white glads or pink glads	loose bunches: small—$3.95 medium—$5.95 large—$7.95 traditional arrangements: small—$12.95 medium—$15.95 large—$17.95 contemporary arrangements: small—$15.95 medium—$17.95 large—$19.95	traditional: ceramic contemporary: brass

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Jackson Branch, Jackson, Jackson County: 502 acres

Mahoning County Farm, Canfield: 275 acres

Muck Crops Branch, Willard, Huron County: 15 acres

North Appalachian Experimental Watershed, Coshocton, Coshocton County 1047 acres (Cooperative with Science and Education Administration/Agricultural Research, U. S. Dept. of Agriculture)

Northwestern Branch, Hoytville, Wood County: 247 acres

Pomerene Forest Laboratory, Coshocton County: 227 acres

Southern Branch, Ripley, Brown County 275 acres

Vegetable Crops Branch, Fremont, Sandusky County: 105 acres

Western Branch, South Charleston, Clark County: 428 acres